11.2 Area of a Parallelogram The area of a parallelogram is the product of a base and its corresponding height. $A = bh$ *(p. 721)*

11.3 Area of a Triangle The area of a triangle is one half the product of a base and its corresponding height. $A = \frac{1}{2}bh$ *(p. 721)*

11.4 Area of a Trapezoid The area of a trapezoid is one half the product of the height and the sum of the lengths of the bases.

$A = \frac{1}{2}h(b_1 + b_2)$ *(p. 730)*

11.5 Area of a Rhombus The area of a rhombus is one half the product of the lengths of its diagonals. $A = \frac{1}{2}d_1d_2$ *(p. 731)*

11.6 Area of a Kite The area of a kite is one half the product of the lengths of its diagonals. $A = \frac{1}{2}d_1d_2$ *(p. 731)*

11.7 Areas of Similar Polygons If two polygons are similar with the lengths of corresponding sides in the ratio of $a : b$, then the ratio of their areas is $a^2 : b^2$. *(p. 737)*

11.8 Circumference of a Circle The circumference C of a circle is $C = \pi d$ or $C = 2\pi r$, where d is the diameter of the circle and r is the radius of the circle. *(p. 746)*

Arc Length Corollary In a circle, the ratio of the length of a given arc to the circumference is equal to the ratio of the measure of the arc to 360°.

$$\frac{\text{Arc length of } \overset{\frown}{AB}}{2\pi r} = \frac{m\overset{\frown}{AB}}{360°}, \text{ or}$$

$$\text{Arc length of } \overset{\frown}{AB} = \frac{m\overset{\frown}{AB}}{360°} \cdot 2\pi r$$ *(p. 747)*

11.9 Area of a Circle The area of a circle is π times the square of the radius. $A = \pi r^2$ *(p. 755)*

11.10 Area of a Sector The ratio of the area A of a sector of a circle to the area of the whole circle (πr^2) is equal to the ratio of the measure of the intercepted arc to 360°.

$$\frac{A}{\pi r^2} = \frac{m\overset{\frown}{AB}}{360°}, \text{ or } A = \frac{m\overset{\frown}{AB}}{360°} \cdot \pi r^2$$ *(p. 756)*

11.11 Area of a Regular Polygon The area of a regular n-gon with side length s is half the product of the apothem a and the perimeter P, so $A = \frac{1}{2}aP$, or $A = \frac{1}{2}a \cdot ns$. *(p. 763)*

12.1 Euler's Theorem The number of faces (F), vertices (V), and edges (E) of a polyhedron are related by the formula $F + V = E + 2$. *(p. 795)*

12.2 Surface Area of a Right Prism The surface area S of a right prism is $S = 2B + Ph = aP + Ph$, where a is the apothem of the base, B is the area of a base, P is the perimeter of a base, and h is the height. *(p. 804)*

12.3 Surface Area of a Right Cylinder The surface area S of a right cylinder is $S = 2B + Ch = 2\pi r^2 + 2\pi rh$, where B is the area of a base, C is the circumference of a base, r is the radius of a base, and h is the height. *(p. 805)*

12.4 Surface Area of a Regular Pyramid The surface area S of a regular pyramid is $S = B + \frac{1}{2}P\ell$, where B is the area of the base, P is the perimeter of the base, and ℓ is the slant height. *(p. 811)*

12.5 Surface Area of a Right Cone The surface area S of a right cone is $S = B + \frac{1}{2}C\ell = \pi r^2 + \pi r\ell$, where B is the area of the base, C is the circumference of the base, r is the radius of the base, and ℓ is the slant height. *(p. 812)*

12.6 Volume of a Prism The volume V of a prism is $V = Bh$, where B is the area of a base and h is the height. *(p. 820)*

12.7 Volume of a Cylinder The volume V of a cylinder is $V = Bh = \pi r^2h$, where B is the area of a base, h is the height, and r is the radius of a base. *(p. 820)*

12.8 Cavalieri's Principle If two solids have the same height and the same cross-sectional area at every level, then they have the same volume. *(p. 821)*

12.9 Volume of a Pyramid The volume V of a pyramid is $V = \frac{1}{3}Bh$, where B is the area of the base and h is the height. *(p. 829)*

12.10 Volume of a Cone The volume V of a cone is $V = \frac{1}{3}Bh = \frac{1}{3}\pi r^2h$, where B is the area of the base, h is the height, and r is the radius of the base. *(p. 829)*

12.11 Surface Area of a Sphere The surface area S of a sphere with radius r is $S = 4\pi r^2$. *(p. 838)*

12.12 Volume of a Sphere The volume V of a sphere with radius r is $V = \frac{4}{3}\pi r^3$. *(p. 840)*

12.13 Similar Solids Theorem If two similar solids have a scale factor of $a : b$, then corresponding areas have a ratio of $a^2 : b^2$, and corresponding volumes have a ratio of $a^3 : b^3$. *(p. 848)*